Complete Summary

GUIDELINE TITLE

Practice parameter: neuroprotective strategies and alternative therapies for Parkinson disease (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology.

BIBLIOGRAPHIC SOURCE(S)

Suchowersky O, Gronseth G, Perlmutter J, Reich S, Zesiewicz T, Weiner WJ, Quality Standards Subcommittee of the American Academy of Neurology. Practice parameter: neuroprotective strategies and alternative therapies for Parkinson disease (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2006 Apr 11;66(7):976-82. [60 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Parkinson disease

GUIDELINE CATEGORY

Management
Treatment

CLINICAL SPECIALTY

Family Practice
Geriatrics
Internal Medicine
Neurology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To define key issues in the management of Parkinson disease (PD) relating to neuroprotective strategies and alternative treatments, and to make evidence-based treatment recommendations

TARGET POPULATION

Patients with Parkinson disease

INTERVENTIONS AND PRACTICES CONSIDERED

Treatment/Management

1. Levodopa
2. Exercise therapy
3. Speech therapy

Interventions and practices considered but not recommended include vitamin E, riluzole, coenzyme Q10, pramipexole, ropinirole, rasagiline, amantadine, thalamotomy, selegiline, *Mucuna pruriens*, acupuncture, manual therapy, biofeedback, and Alexander technique.

MAJOR OUTCOMES CONSIDERED

- Rate of disease progression
- Motor function
- Speech volume
- Neuroprotective effect

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

For the literature review, the following databases were searched: MEDLINE, EMBASE, CINHAL, and Cochrane Database of Systematic Reviews for the years 1997–2002. Only articles written in English were included. A second MEDLINE search covered 1966–August 2004, followed by a secondary search using the bibliographies of retrieved articles and knowledge from the expert panel extending to January 2005.

Results, Key Words, and Inclusion/Exclusion Criteria

For question 1 (Are there any therapies that can slow the progression of Parkinson disease [PD]?):

- Search terms: Parkinson disease, disease progression, antiparkinson agents, monoamine oxidase inhibitors, levodopa, amantadine, dopamine agonists, ascorbic acid, vitamin E, and coenzyme Q.
- Inclusion criteria: Studies of rates of disease progression in patients with early PD using potential neuroprotective agents. Articles dealing only with symptomatic benefit were excluded. At least 6 months of follow-up were required. Articles discussing selegiline were reviewed in a previous Practice Parameter.
- Categories found: amantadine, coenzyme Q10, levodopa, pramipexole (with and without imaging), rasagiline, ropinirole (with imaging), thalamotomy, vitamin C, vitamin E.

For question 2 (Are there any nonstandard pharmacologic or nonpharmacologic therapies that have been shown to improve motor function in PD?):

- Search terms: Parkinson disease, rehabilitation, complementary therapies, medicinal plants, vitamins, dietary supplements, homeopathy, holistic health, acupuncture, chiropractice, manipulation, physiotherapy, speech therapy, and tai chi.
- Inclusion criteria: At least 10 subjects included in study with treatment of at least 1 week duration.
- Categories found: naturopathic treatments, physiotherapy, speech therapy, vitamin therapy (folic acid, pyridoxine, ascorbic acid, vitamin E, vitamin D, vitamin K 2), chiropractice, acupuncture, Alexander technique, music therapy, osteopathic manipulation.

NUMBER OF SOURCE DOCUMENTS

For question 1 (Are there any therapies that can slow the progression of Parkinson disease?): 11 articles satisfied inclusion criteria.

For question 2. (Are there any nonstandard pharmacologic or nonpharmacologic therapies that have been shown to improve motor function in Parkinson disease [PD]?): 22 articles satisfied inclusion criteria.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Classification of Evidence for Therapeutic Articles

Class I: Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required:

a. primary outcome(s) is/are clearly defined
b. exclusion/inclusion criteria are clearly defined
c. adequate accounting for drop-outs and cross-overs with numbers sufficiently low to have minimal potential for bias
d. relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences

Class II: Prospective matched group cohort study in a representative population with masked outcome assessment that meets a-d above OR a randomized control trial (RCT) in a representative population that lacks one criterion a-d

Class III: All other controlled trials including well-defined natural history controls or patients serving as own controls in a representative population, where outcome assessment is independently assessed or independently derived by objective outcome measurement*

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion

* Objective outcome measurement: an outcome measure that is unlikely to be affected by an observer's (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data)

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

The majority of articles were reviewed by the full panel. If a panelist was an author of one of the articles, at least two other panelists reviewed that article. If a disagreement was identified, consensus was reached by discussion with the whole group. The risk of bias for each study was determined using the classification of evidence scheme.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Other

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Classification of Recommendations

Level A = Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.)

Level B = Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.)

Level C = Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

Level U = Data inadequate or conflicting; given current knowledge, treatment is unproven.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Draft guidelines were reviewed for accuracy, quality, and thoroughness by the American Academy of Neurology members, topic experts, and pertinent physician organizations.

Final guidelines were approved by the American Academy of Neurology Quality Standards Subcommittee on July 30, 2005, the American Academy of Neurology Practice Committee on December 15, 2005, the American Academy of Neurology Board of Directors on February 23, 2006. They were published in Neurology 2006;66:975-982.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the classification of evidence for therapeutic articles (Class I–IV), and strength of recommendations (A, B, C, U) are provided at the end of the "Major Recommendations" field.

Are There Any Therapies That Can Slow the Progression of Parkinson Disease (PD)?

Recommendations

For patients with PD, treatment with 2,000 units of vitamin E should not be considered for neuroprotection (**Level B**).

There is insufficient evidence to support or refute the use of riluzole (**Level U**), coenzyme Q10 (**Level U**), pramipexole (**Level U**), ropinirole (**Level U**), rasagiline (**Level U**), amantadine (**Level U**), or thalamotomy (**Level U**) for neuroprotection.

Levodopa may be considered for initial treatment of PD (9 months) as it does not accelerate disease progression and is safe (**Level B**). There is no long-term evidence to recommend levodopa for neuroprotection (**Level U**).

As reviewed in a previous Practice Parameter (see National Guideline Clearinghouse [NGC] summary of the American Academy of Neurology [AAN] guideline Practice parameter: initiation of treatment for Parkinson's disease: an evidence-based review), there is insufficient evidence to recommend the use of selegiline for neuroprotection (**Level U**).

Are There any Nonstandard Pharmacologic or Non-Pharmacologic Therapies That Have Been Shown to Improve Motor Function in Parkinson Disease?

Recommendations

There is insufficient evidence to support or refute the use of *Mucuna pruriens* for the treatment of motor symptoms of PD (**Level U**).

For patients with PD, vitamin E (2,000 units) should not be considered for symptomatic treatment (**Level B**).

There is insufficient evidence to support or refute the use of acupuncture in PD (**Level U**).

There is insufficient evidence to support or refute manual therapy, biofeedback, or Alexander technique in the treatment of PD (**Level U**).

For patients with PD, exercise therapy may be considered to improve function (**Level C**). For patients with PD complicated by dysarthria, speech therapy may be considered to improve speech volume (**Level C**).

Definitions:

Classification of Evidence for Therapeutic Articles

Class I: Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required:

a. primary outcome(s) is/are clearly defined
b. exclusion/inclusion criteria are clearly defined
c. adequate accounting for drop-outs and cross-overs with numbers sufficiently low to have minimal potential for bias
d. relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences

Class II: Prospective matched group cohort study in a representative population with masked outcome assessment that meets a-d above OR a randomized controlled trial (RCT) in a representative population that lacks one criterion a-d.

Class III: All other controlled trials including well-defined natural history controls or patients serving as own controls in a representative population, where outcome assessment is independently assessed or independently derived by objective outcome measurement.*

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion.

* Objective outcome measurement: an outcome measure that is unlikely to be affected by an observer's (patient, treating physician, investigator) expectation or bias (e.g., blood tests, administrative outcome data)

Classification of Recommendations

Level A = Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.)

Level B = Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.)

Level C = Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

Level U = Data inadequate or conflicting; given current knowledge, treatment is unproven.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of neuroprotective strategies and alternative therapies in patients with Parkinson disease (PD) leading to improvements in motor function and speech volume

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This statement is provided as an educational service of the American Academy of Neurology (AAN). It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on all of the circumstances involved.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Personal Digital Assistant (PDA) Downloads
Quick Reference Guides/Physician Guides
Staff Training/Competency Material

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Suchowersky O, Gronseth G, Perlmutter J, Reich S, Zesiewicz T, Weiner WJ, Quality Standards Subcommittee of the American Academy of Neurology. Practice parameter: neuroprotective strategies and alternative therapies for Parkinson disease (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2006 Apr 11;66(7):976-82. [60 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Apr 11

GUIDELINE DEVELOPER(S)

American Academy of Neurology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Neurology (AAN)
Michael J. Fox Foundation

GUIDELINE COMMITTEE

Quality Standards Subcommittee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Authors: O. Suchowersky, MD; G. Gronseth, MD; J. Perlmutter, MD; S. Reich, MD; T. Zesiewicz, MD; W.J. Weiner, MD

Quality Standards Subcommittee Members: Gary Gronseth, MD (*Co-Chair*); Jacqueline French, MD (*Co-Chair*); Charles E. Argoff, MD; Stephen Ashwal, MD (ex-officio); Christopher Bever, Jr., MD; John D. England, MD; Gary Franklin, MD, MPH (ex-officio); Gary H. Friday, MD; Larry B. Goldstein, MD; Deborah Hirtz, MD (ex-officio); Robert G. Holloway, MD, MPH; Donald J. Iverson, MD; Leslie Morrison, MD; Clifford J. Schostal, MD; David J. Thurman, MD, MPH; Samuel Wiebe, MD; William J. Weiner, MD (facilitator)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Dr. Suchowersky has received consulting fees from Teva, speaker fees from GlaxoSmithKline, and research funds from Boehringer Ingelheim, Kyowa, Merck, Amarin, Cephalon, Swartz-Pharma, and Solstice Neuroscience. Dr. Reich has received research funds from Guilford Pharmaceuticals and Cephalon. Dr. Perlmutter has received unrestricted educational funds from Medtronic. Dr. Zesiewicz has received consulting fees from UCB Pharma and Schwartz Pharma, speaker fees from Boehringer Ingelheim, GlaxoSmithKline, Novartis and Medtronic, and research funds from Boehringer Ingelheim, GlaxoSmithKline, Novartis and Merck. Dr. Weiner is a consultant for Teva, a speaker for Boehringer Ingelheim, and has received research funds from Boehringer Ingelheim and Teva. Dr. Gronseth has nothing to disclose.

ENDORSER(S)

National Parkinson Foundation - Disease Specific Society
Parkinson's Disease Foundation - Disease Specific Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: A list of American Academy of Neurology (AAN) guidelines, along with a link to a Portable Document Format (PDF) file for this guideline, is available at the AAN Web site.

Print copies: Available from the AAN Member Services Center, (800) 879-1960, or from AAN, 1080 Montreal Avenue, St. Paul, MN 55116.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- AAN guideline development process [online]. St. Paul (MN): American Academy of Neurology. Available from the American Academy of Neurology (AAN) Web site.
- Practice parameter: neuroprotective and alternative therapies for Parkinson disease. AAN summary of evidence-based guidelines for clinicians. St. Paul (MN): American Academy of Neurology. 2006. 2 p. Available in Portable Document Format (PDF) from the AAN Web site.
- Practice parameter: neuroprotective and alternative therapies for Parkinson disease. St. Paul (MN): American Academy of Neurology. 2006. 12 p. Available for personal digital assistant (PDA) download from the AAN Web site.
- Neuroprotective strategies and alternative therapies for Parkinson disease. CME quiz. Available online to subscribers of Neurology at the *Neurology* Web site.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on June 6, 2006. The information was verified by the guideline developer on September 26, 2006.

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